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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,060	08/27/2003	David C. White	BW-DKT03085	4962
32175	7590	04/22/2004	EXAMINER	
BORGWARNER INC. POWERTRAIN TECHNICAL CENTER 3800 AUTOMATION AVENUE, SUITE 100 AUBURN HILLS, MI 48326-1782			RIDDLE, KYLE M	
		ART UNIT		PAPER NUMBER
				3748

DATE MAILED: 04/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/649,060	WHITE ET AL. 
Examiner	Art Unit	
Kyle M. Riddle	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-8 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 27 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08272003.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings filed on 27 August 2003 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:
  - Page 10, line 20, "irrivasibly" should read --irreversibly--;
  - Page 11, line 14, "wholes" should read --holes--;
  - Page 11, line 22, "a" should read --A--;
  - Page 12, line 4, "redial" should read --radial--;
  - Page 12, line 23, "a" should read --A--;
  - Page 13, line 7, "non-reversable" should read --non-reversible--;
  - Page 14, line 17, "swaging" should read --swaged--;
  - Page 15, line 8, "Noted" should read --Note--;
  - Page 15, line 9, "in" should read --In--.

Appropriate correction is required.

***Claim Objections***

4. Claim 3 is objected to because of the following informalities: Page 19, claim 3, first word of the claim, "the" should read --The--. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borraccia et al. (U.S. Patent 6,405,696) in view of Klaar (U.S. Patent 5,992,265) or Arnold et al. (U.S. Patent 4,922,785).

Borraccia et al. disclose a spline-type cam phaser comprising:

- an inner hub 130 and hub flange 132 with oversized bore 142 sized to receive in interference fit a boss 154 on the inner hub 130 for sealably mating with the end of camshaft 12 (column 5, lines 52-67);

- a bolt 76 threaded through the central openings in the camshaft, cover, hub, and hub flange to lock elements irreversibly in a fixed relation with no other radial fastening members (column 5, lines 39-41 and Figures 2, 5, and 6);

- the inner hub 130 preferably formed by machining and press-fitted with hub flange 132 (column 6, lines 9-17);

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- external right hand helical splines 90 and internal left hand helical splines 92 for meshingly engaging the corresponding splines 28, 52 on the sprocket flange and hub assembly, respectively (column 7, lines 38-41);

- eliminating the need for a second load bearing surface reducing component parts and improving axial alignment (column 8, lines 35-41);

- a cover 66 with reduced size, mass and inertia (column 8, lines 54-63);

- a pressed inner groove ring 160 for supporting seal 162 into inner hub 130 permitting easy machining of hub splines 52 and reducing the minimum axial length of the phaser (column 8, lines 64-67 with column 9, lines 1-5).

Borraccia et al. fail to disclose irreversibly mounting the hub or rotor on a shaft without the use of a fastening member.

Klaar teaches a built-up camshaft 1 to fix a hub or sprocket mounting 6 made from a steel tube (column 3, lines 37-45) and having a shoulder 18 (or hub) formed integrally in one piece at the end of shaft body 11 and then working the unfinished surface of the cast body 20 to create the proper contours (column 3, lines 55-64).

Arnold et al. teach a tubular camshaft assembly of forged metal with irreversibly fixed cam elements 12 and journal elements 14 which can include gears, eccentrics or sprockets (column 2, lines 19-30), and mounting the end elements in their proper positions, forcibly loading the shaft ends, and expanding the shaft preferably by a ball 48 forced through the tube or shaft 11 in a process known as ballizing (column 4, lines 3-23).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Klaar or Arnold et al., in the phaser

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apparatus of Borraccia et al., since the use thereof would eliminate the need of bolt 76. Borraccia et al. suggest the irreversibly mounting of the hub 130 to the camshaft 12 by the interference fitting of boss 154 on the hub 130 sealably mating with camshaft 12 (column 5, lines 62-67). Borraccia et al. further suggest the primary purpose of the bolt 76 is to secure the cover 66, 168 (column 6, lines 22-25, lines 55-66, and column 8, lines 15-18, lines 49-63). Therefore, Borraccia et al. suggests that a fastening member (bolt) is not needed for the attachment of the hub 130 to the camshaft 12. Furthermore, applicant's invention includes holes in the camshaft (see Figures 3-5, 8, and 9) comparable to the size of the bolt 76, indicating the inclusion of such a bolt only minimally, if any, alters the reduced axial dimension as claimed. However, where a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983).

### ***Conclusion***

7. The IDS (PTO-1449) filed on 27 August 2003 has been considered. An initialized copy is attached hereto.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 4 patents.

- Heintz et al. (U.S. Patent 2,353,466) disclose a housing and method of making same including brazing, pressing, welding, and machining.

- Arnold et al. (U.S. Patent 5,343,618) disclose a method of assembling a shaft and apertured member using a ball.

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- Wizemann et al. (German Patent DE 4029026 A1) disclose a method of assembling a camshaft with couplings and sprockets welded on the end.

- Wizemann et al. (European Patent EP 473061 A2) disclose a method of assembling a camshaft with couplings and sprockets welded on the end.

***Communication***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Kyle M. Riddle  
Examiner  
Art Unit 3748

kmr

  
THOMAS DENION  
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